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EXAMINER

SAVAGE, JASON L

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/532,854	Applicant(s) HONDA ET AL.	
	Examiner JASON L. SAVAGE	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Objections

Claim 3 is objected to because of the following informalities:

Claim 3 is a duplicate of claim 2 as presently amended and should be canceled.

Appropriate correction is required.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fumishiro et al (JP 2002-187234 English Machine Translation).

Fumishiro teaches a corrosion resistant hot-dip galvanized steel having a zinc alloy surface coating comprising 4-22 mass% Al, 1-4% Mg, up to 0.1% Ti and up to 0.5% Si (Abstract and Claim 1). Fumishiro further teaches that phases of Al/Zn/Zn₂Mg are formed (DETAILED DESCRIPTION par[0013]). Fumishiro also exemplifies embodiments wherein the Ti content is 0.02% (DETAILED DESCRIPTION par[0031])

Regarding the limitation that a Ti-Al intermetallic compound is formed in the recited phases, since Fumishiro teaches the same alloying materials in the same amounts claimed by Applicant, one of ordinary skill in the art would expect the formation of the Ti-Al intermetallic compound in the recited phases to have been inherent. The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 U.S.P.Q. 431 (CCPA 1977).

In the alternative, if there is a difference, it would be minor and the claimed article would have been obvious over Fumishiro. Specific claimed alloy, whose compositions are in such close proportions to those in the prior art that, prima facie one skilled in the art would have expected them to have the same properties, must be considered to have been obvious from known alloys, *Titanium Metals Corporation of America V. Banner*, 227 USPQ 773.

Regarding claims 2-4 and 7, as was set forth above, Fumishiro teaches that up to 0.5% of Si may be contained in the plating coating. As such, the claimed Mg_2Si phase and other phases would have inherently formed since the prior art teaches the same alloying materials in the same amounts claimed by Applicant,

Regarding claim 5, Fumishiro exemplifies embodiments containing no Si (Detailed Description par. [0031]). As such, the Ti-Al intermetallic formed would be expected to be the $TiAl_3$ such as is claimed.

Regarding claim 6, Fumishiro exemplifies embodiments containing Si and no Si (Detailed Description par. [0031]). The embodiments containing no Si would meet the claim limitation wherein $X=0$ and the embodiments containing the recited Si amount would meet the limitation wherein the intermetallic has the formula that is claimed.

Regarding claim 8, although Fumishiro is silent to the size of the dendrites in the Al phase, as evidenced in the specification on pages 10-11 of the instant Application, the formation of the Ti-Al base intermetallic promotes the crystallization of dendritic nuclei of the phase materials resulting in dendrites having sizes within the range claimed.

Claims 1 and 5-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Komatsu et al. (WO98/26103).

Komatsu teaches a corrosion resistant hot-dip galvanized steel have a zinc alloy surface coating comprising 4-10 wt % Al, 1-4% Mg and adding proper amounts of Ti as well (Abstract). Komatsu further teaches that phases of Al/Zn/ Zn_2Mg are formed (Abstract). Komatsu also exemplifies embodiments wherein the Ti content added to the coating layer is 0.001-0.100% (p. 34, Table 5).

Regarding the limitation that a Ti-Al intermetallic compound is formed in the recited phases, since Komatsu teaches the same alloying materials in the same

amounts claimed by Applicant, the formation of the Ti-Al intermetallic compound in the recited phases would have been inherent.

In the alternative, if there is a difference, it would be minor and the claimed article would have been obvious over Komatsu.

Regarding claims 5 and 6, Komatsu exemplifies embodiments containing no Si (p. 34, Table 5]). As such, the Ti-Al intermetallic formed would be expected to be TiAl_3 such as is claimed or having the composition recited in claim 6 wherein $x = 0$.

Regarding claim 7, as was set forth above, since Komatsu teaches the same alloying material in the same amounts claimed by Applicant, the formation of the Ti-Al intermetallic in the claimed Zn-Al eutectoid reaction structure would have been inherent.

Regarding claim 8, although Komatsu is silent to the size of the dendrites in the Al phase, as evidenced in the specification on pages 10-11, the formation of the Ti-Al base intermetallic promotes the crystallization of dendritic nuclei of the phase materials resulting in dendrites having sizes within the range claimed.

Response to Arguments

Applicant's arguments filed 12-14-07 have been fully considered but they are not persuasive.

Applicant argues that the prior art '103 patent of Komatsu (WO98/26103) does not disclose or suggest anything about a Ti-Al base intermetallic compound and that this Ti-Al base intermetallic compound must be contained in one or more of the [Al phase], [Zn2Mg phase] and [Zn phase] for obtaining good surface smoothness and formability.

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Applicant further asserts that it is clear that the '103 patent does not contain Ti-Al intermetallic compound in the plated layer since the patent discloses that Ti, B or the TiB₂ phase cannot be clearly observed by an electron microscope and that the metallic structure is substantially the same as the plated steel sheet without containing Ti and B. However, it is unclear exactly what the '103 patent teaches as a translated copy has not been provided. As such, the Examiner is not able to verify Applicant's assertions of what is disclosed, particularly the assertion that the '103 patent would not contain a Ti-Al intermetallic compound in the plated layer.

Given the teaching that when the Ti content exceeds 0.1 wt%, Ti-Al precipitates grow and cause an uneven surface appearance, one would expect for there for be formation of at least some intermetallic Ti-Al precipitates when the Ti content is 0.1 wt% or lower just as is observed in Applicant's invention. Regarding the assertion that the Ti-Al base intermetallic be formed inside of the claimed phases, one would expect that the Ti-Al intermetallics of the '103 patent to form in the recited phases since it teaches the same alloying materials in the same amounts claimed using a substantially similar process. Applicant has provided no evidence showing that Ti-Al intermetallic would not form in the coating of the '103 patent or that none of the formed Ti-Al intermetallic would form inside of the claimed phases. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (FED. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is

inherently present in the prior art does not necessarily make the claim patentably. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). In *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir./ 2004), the court held that the claimed promoter sequence obtained by sequencing a prior art plasmid that was not previously sequenced was anticipated by the prior art plasmid which necessarily possessed the same DNA sequence as the claimed oligonucleotides. The court states that “just as the discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel.” *Id.* (See MPEP 2112 [R-3]).

Applicant further recites on page 9 of the Amendment that in order for the required/claimed plated steel sheet to be obtained, the Ti-Al intermetallic compound necessarily exists at more than 10% among the claimed phases. Applicant also recites on pages 9-10 of the Amendment that it is necessary to disperse the Ti-Al intermetallic compound having a size less than 10 microns in the plating bath. Applicant further recites on page 10 of the Amendment that it is necessary to provided the Ti-Al intermetallic compound in a powder state or to dissolve Ti as a supersaturation for crystallizing as Ti-Al intermetallic compound in the plating bath and start solidification before the Ti-Al intermetallic compound forms a coarse size. These arguments are not commensurate in scope with the claims as there are no limitations drawn to the proportion of the Ti-Al intermetallic within the claimed phases, or the Ti-Al intermetallic particle size or providing the Ti-Al intermetallic as a powder or dissolving Ti as a supersaturation for crystallizing the intermetallic.

Furthermore, these arguments that the recited properties and parameters are necessary does not correlate to the disclosure in the specification in paragraphs [0042] and [0043] of the published application (US 2006/0073355) that "there is no specific restriction on the size of the intermetallic compound in the present invention"; "there is no specific limitation on the proportion of the intermetallic compound present in the plating layer structure"; and "There is no specific restriction on the method of adding the intermetallic compound".

In addition thereto, Applicant has still not established that the '103 patent would not form the Ti-Al intermetallic such as claimed in the proportion and size Applicant asserts is necessary.

Applicant concludes that the '103 patent is quite different from the present invention in the points of no Ti-Al intermetallic compound in the plating bath, in addition to the production process and the construction of the plating layer. Forth the reasoning set forth above, this argument is not persuasive.

With respect to the prior art of Fumishiro, JP 2002-187234 ('234 patent), Applicant recites that the '234 patent does not disclose or suggest Ti-Al intermetallic compound. On page 11 of the Amendment Applicant states that since a Ti and B containing Zn-Al bath is used to restrain $Zn_{11}Mg_2$ phase formation and growth and there is no disclosure or suggestion of a dispersion of Ti-Al intermetallic, the Ti-Al intermetallic would not be formed. However, as recited in the rejection above, one would expect Ti-Al intermetallics to form in the recited phases since the '234 patent

teaches the same alloying materials in the same amounts claimed using a substantially similar process. Applicant has provided no evidence showing that Ti-Al intermetallic would not form in the coating of the '234 patent or that none of the formed Ti-Al intermetallic would form inside of the claimed phases.

On pages 11-12 of the Amendment Applicant repeats the previous arguments that the Ti-Al intermetallic must have a size less than 10 microns and that more than 10% of the intermetallic exists in the claimed phases; however, these arguments are not commensurate in scope with the claims. Furthermore, Applicant has still not established that the '234 patent would not form the Ti-Al intermetallic such as claimed in the proportion and size Applicant asserts is necessary.

On page 12 of the Amendment Applicant recites that it is difficult for Ti-Al intermetallic compound to exist in either of the claimed phases of more than 10% in the plating layer because the amount of Ti concentration dissolved in the coating bath is very small considering the coating bath components disclosed in the '103 patent and '234 patent, and most of Ti exists only as a Ti-intermetallic compound in the coating bath. This argument is not persuasive as the prior art patents disclose Ti concentrations in the plating baths of 0.001-0.100% in the '103 patent and up to 0.1% and 0.2% in the '234 patent. These Ti concentrations fall entirely within Applicant's disclosed range of 0.000001 to 0.1% by mass as recited in par[0029] of the published application. As such, the assertion that the prior art disclosures could not form the Ti-Al

intermetallic compound or that such a compound would exist within the claimed phases due to a very small Ti concentration in the coating bath is not persuasive.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. SAVAGE whose telephone number is (571)272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KEITH D. HENDRICKS/
Supervisory Patent Examiner, Art
Unit 1794

Jason Savage

3-11-08